

# What is Proprioception?

## -- Compared with Perceptual Knowledge/Practical Knowledge

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### Abstract

**This paper aims to explore the particularity of proprioception. Because of its internality, inseparable descriptiveness and 'need no proof' characteristics, it is different from perceptual knowledge, and because of its non-intentional, it is different from practical knowledge. Besides, as the intermediary of mind and body, it provides an important foundation for mind and external perception and intentional action.**

### Keywords

**Proprioception; Bodily Self-Knowledge; Perceptual Knowledge; Practical Knowledge.**

### 1. Introduction

Anscombe and McDowell regard proprioception as non-observational self-knowledge, which is different from perceptual knowledge and practical knowledge. So how can we establish this conclusion? This paper will first clarify the meaning of proprioception, then discusses it in the reference frame of perceptual knowledge and practical knowledge, and explains the relationship and difference between them.

we need firstly clarify what is proprioception --our knowledge about our present bodily status, position and posture.

Here I give an example to demonstrate this internality: When we put one leg on the other leg, we can use vision to confirm this fact, but generally speaking, we don't need to see, even when blindfolded, we can know that our leg is in this position. And this kind of "knowing" is realized through the internality of proprioception.

There are some objections that this kind of internal proprioception may face unreliable problem. For example, we give some stimulation to the brain nerves to make them mistake us for lifting our legs, but in fact we don't. In my opinion, this question is mainly about the reliability of proprioception, not the source of proprioception ( like we get it from outside not within). We won't concern this for the moment.

The internality brings about the uniqueness of proprioception. On the one hand, its perceptual object is a physical entity, so it's related to our five sense organs. On the other hand, its perceptive way is internal, so it has a strong relationship with our mind - proprioception is at the intersection of body and mind, a intermediary between our mind and physical world. This gives proprioception a special status.

Therefore, what is proprioception? Is it self-knowledge and non-observational? What is the difference between it and practical or perceptual knowledge? In what follows, I try to answer these questions and clarify the connotation and particularity of proprioception through this comparison.

## 2. Proprioception Compared with Practical and Perceptual Knowledge

### 2.1. Bodily Knowledge based on Proprioception

Here, in order to facilitate the subsequent comparison, I divide this kind of knowledge into two categories, one is that we can sense our limbs, and its status, position, like we will never be suspicious of the existence of our limbs (under normal conditions). And the other is how we control our body, like the content of our limbs action.

The reason I divide these two categories is that the first one can compare with perceptual knowledge, and the second one refers to practical knowledge. I must say that It's not a precise classification, mainly in order to give two reference frame to discuss proprioception. In some papers, the input of proprioception will be distinguished from the output of motor sensation in a more detailed way. (Alisa Mandrigin, 2021) but I'm not concerned such distinction here.

### 2.2. Proprioception Compared with Perceptual Knowledge

In this part, we discuss whether proprioception is a 'sensory organ' like visual or auditory, and whether proprioception is perceptual knowledge. On this issue, Anscombe and McDowell both give a inference: proprioception is non-perceptual knowledge (non-observational), which means, proprioception isn't gained from observation or sensation, so not perceptual knowledge.

Anscombe says: "a man usually knows the position of his limbs without observation." (Anscombe,1957, p13) How to prove it? In Section 8 of *intention*, Anscombe wrote: "Where we can speak of separately describable sensation, having which is in some sense our criterion for saying something, then we can speak of observing that thing; but that is not generally so when we know the position of our limbs." (Anscombe,1957, p13)

Anscombe gives a definition of 'observational', and explains why proprioception is non-observational. Here I give a reconstruction of the above quoted words:

two premises of 'observational' are: 1) The sensation of observing something can be described separately (the detachability of sensation); 2) This sensation is the standard by which we identify this object. Because the position of our limbs (knowledge based on proprioception) cannot be described separately, and is not confirmed by observation, so it's not observational.

Here I give an example to illustrate Anscombe's view.

Case 1: (from version sensation)

a: I see a crocodile.

b: I see a long strip, brown thing.

Case 2: (from proprioception)

a: I feel my leg is bent.

b: \_\_\_\_\_

In case 1, "I see a crocodile" is a kind of perceptual knowledge from vision. This expression can be reduced to "I see a long strip, brown thing". Then "long strip" and "Brown" are the separable descriptions of this sensation. According the combination of separable descriptions, we can finally prove the correctness of the perceptual knowledge of "crocodile". (in fact, we can make more separable descriptions, like "with bulges" and "with big mouths") and another negative interpretation is that We may make the mistake of observe this object as a 'dead branches floating in the water' – perceptual knowledge "requires the possibility of misidentification" (Mandrigin, 2021).

But in case 2, "I feel my leg is bent", this feeling is difficult to be described separately - in fact, only after careful feeling, we can say that the feeling of bending leg is a feeling of "muscle compression, the calf touching the thigh", which is still an unreduced external description. In general, we can only say, "Leg bending is the feeling of leg bending". Besides, we don't doubt the facts of leg bending - no need to prove it visually (or by other sensory organs). we just believe this bodily knowledge so directly. In fact, we won't mistake the feeling of leg bending for the feeling of hand bending. From our proprioception's view, It's so unique and need no proof.

Through Anscombe's explanation of 'observational' and the given example, we can distinguish between proprioception and sensory sense, and show that this kind of knowledge is non-observational and therefore not perceptual knowledge. So proprioception gives us "bodily self-knowledge".

However, it should be pointed out here that "no need to prove" does not mean "complete correctness", like "phantom limbs". many patients who lose limbs report that they can still feel the lost limbs (including arms and legs) and have "phantom limb pain". In this case, as the intermediary of body and mind, proprioception seems to "fantasize" a physical part that does not belong to our body. Here, I try to give an explanation. Firstly, proprioception is not just feeling a certain body part, but feeling a certain body part at a position in body relative physical space, so it has a sensation of internal body space. Secondly, this spatiality is bound to change. For example, with the growth of people, the schange of the body shape will inevitably bring about internal relative spatiality adjustment, otherwise we will not be able to sense the crossing of legs all the time correctly. Then, since the spatiality is changeable, when meeting some situations that "affect the normal debugging of proprioception", it has the possibility of making mistakes.

However, even if we recognize the possibility of error, it doesn't mean that we will prove the proprioception before confirming it. In the case of phantom limb, although we can clearly recognize the absence of limbs through external senses such as vision and touch, and we also have the memory of amputation, we still sense its existence inside, and this proprioception cannot be falsified by perceptual knowledge. Although we recognize the error of proprioception rationally, we can't correct it and still say 'I surly feel I have this limbs.'. This is what it means by "no need to prove".

In this case, another point I wish to add is that perceptual knowledge is composed of descriptions of secondary qualities, such as color, shape and texture (referring to the description of 'crocodile'), but bodily self-knowledge does not have qualia of secondary qualities, which is only 'primary qualities' description based on internal body space. As McDowell says, "there are no secondary qualities associated with the relevant kind of knowledge of the position of one's limbs." (Mcdowell,2011, p144)This is also an important difference.

Finally, I'd like to give another stronger argument. In the first 'crocodile' case, if we want to observe a crocodile with our eyes, we must realize that our eyes are open without observation first. And even if we need to use the touch of our hands to determine whether our eyes are open, we still need to make sure that our hands are still open. Therefore, there must be a kind of bodily self-knowledge giving support to the reliability of our sense's perceptual knowledge.

### **2.3. Proprioception Compared with Practical Knowledge**

Anscombe defines practical knowledge as "non-observational knowledge in intentional action". Based on it, McDowell said "having one's limbs arranged in a certain way is not in general a case of activity. And if that is right, knowledge of limb position is not just a species of practical knowledge." [5] That is to say, bodily self-knowledge is not a kind of practical knowledge.

So why is it not a kind of practical knowledge? In other words, why is proprioception not intentional? I'm trying to discuss it.

I give a case here - When I open my eyes and observe, my "body control" of my eyes is obvious proprioception. If I have no intention, this kind of observation is indistinguishable, and the visual information I receive is "equal", I cannot find a purpose to give intention to 'eyes open', so proprioception has a kind of "meta aimlessness". Then we consider an extreme situation: aversion therapy, which is that people achieve therapeutic effect by constantly observing the same thing. We will force our eyes to focus on a certain content. This change of open eyes to focused eyes, along with the generation of our intentional action, makes "focusing on that content" become a kind of practical knowledge.

Another case is the knee jump reflex, which is that when the knee is half bent and the leg is free to droop, the knee tendon is knocked lightly, and the leg kicks forward rapidly. In this situation, when the leg is knocked, it has nothing to do with the intention of the knocked person. The leg movement is also unintentional, but in proprioception, he can sense the body action (even if his eyes are blindfolded), and remember that sensation in the knee jump reflex, thus forming a kind of bodily self-knowledge. This shows that practical knowledge and physical self-knowledge are not consistent.

Therefore, from case 1.2, we can find that proprioception is not practical knowledge, and actually it's the basis of practical knowledge, and guarantees the connection between mind and intentional action.

### 3. Conclusion

According to the above discussion, we can conclude that, proprioception is the way we obtain non-observational bodily self-knowledge, which is different from perceptual knowledge and practical knowledge. Besides, it gives a non-suspicious original guarantee for both perceptual knowledge and practical knowledge.

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